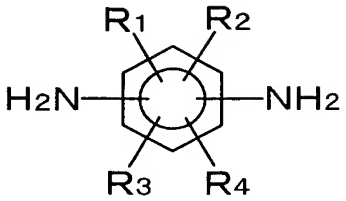
CLAIMS

1. A heat-resistant resin laminate film comprising a heat-resistant insulating film, and a heat-resistant resin layer(s) laminated on at least one surface of said heat-resistant insulating film, said heat-resistant resin layer having a coefficient of linear expansion kA (ppm/°C) within the range of $k-10 \leq kA \leq k+20$ (wherein k represents the coefficient of linear expansion of said heat-resistant insulating film).

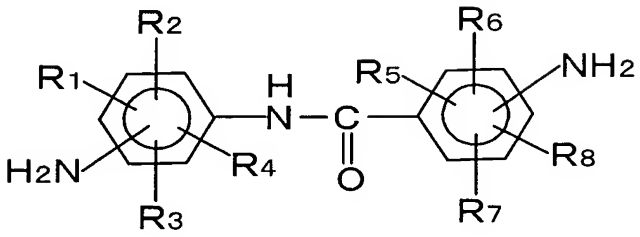
2. The heat-resistant resin laminate film according to claim 1, comprising a heat-resistant insulating film, and a heat-resistant resin layer(s) laminated on at least one surface of said heat-resistant insulating film, wherein said heat-resistant resin layer comprises not less than two heat-resistant resin layers at least one of which has a coefficient of linear expansion kA (ppm/°C) within the range of $k-10 \leq kA \leq k+20$ (wherein k represents the coefficient of linear expansion of said heat-resistant insulating film).

3. The heat-resistant resin laminate film according to claim 1 or 2, wherein said heat-resistant insulating film has a coefficient of linear expansion of 5 to 25 ppm/°C, and said heat-resistant resin layer having the coefficient of linear expansion kA (ppm/°C) within the range of $k-10 \leq kA \leq k+20$ (wherein k represents the coefficient of linear expansion of said heat-resistant insulating film) has a coefficient of linear expansion of 5 to 30 ppm/°C.

4. The heat-resistant resin laminate film according to any one of claims 1 to 3, wherein the resin constituting said heat-resistant resin layer having the coefficient of linear expansion kA (ppm/°C) within the range of $k-10 \leq kA \leq k+20$ (wherein k represents the coefficient of linear expansion of said heat-resistant insulating film) is a polyimide resin comprising as a diamine component(s) at least one aromatic diamine represented by any of the Formulae (1) to (3) in an amount of not less than 40 mol% based on the total diamine component(s).



(1)



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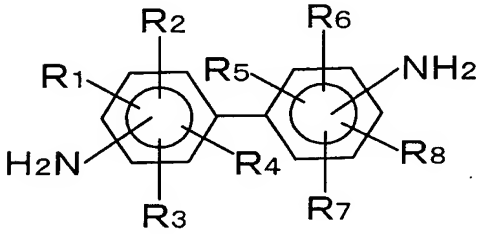

(3)

(wherein R^1 to R^8, the same or different, are selected from the group consisting of hydrogen, C_1-C_{30} alkyl, C_1-C_{30} alkoxy, halogen, hydroxy, carboxyl, sulfonic, nitro and cyano).

5. The heat-resistant resin laminate film according to claim 4, wherein said diamine component(s) of said polyimide resin comprises at least one selected from the group consisting of *p*-phenylenediamine, 4,4'-diaminobenzanilide and 2,2'-dimethylbenzidine, in an amount of not less than 40 mol% based on the total diamine component(s).

6. The heat-resistant resin laminate film according to claim 4, wherein tetracarboxylic acid component(s) of said polyimide resin comprise pyromellitic dianhydride and/or biphenyltetracarboxylic dianhydride in an amount of not less than 40 mol% based on the total tetracarboxylic acid component(s).

7. A laminate film having a metal layer(s), comprising said heat-resistant resin

laminate film according to any one of claims 1 to 6, and a metal layer(s) laminated on said heat-resistant resin layer(s).

8. The laminate film having a metal layer(s) according to claim 7, comprising said heat-resistant insulating film and said metal layer(s) laminated on at least one surface of said heat-resistant insulating film through said heat-resistant resin layer, wherein said heat-resistant resin layer comprises at least two layers including said heat-resistant resin layer A whose coefficient of linear expansion kA (ppm/°C) is within the range of $k-10 \leq kA \leq k+20$ (wherein k represents the coefficient of linear expansion of said heat-resistant insulating film) and a heat-resistant resin layer B having a glass transition temperature lower than that of said heat-resistant resin layer A, said heat-resistant resin layer A being laminated at a side so as to contact said metal layer, and said heat-resistant resin layer B being laminated at a side so as to contact said heat-resistant insulating film.

9. The laminate film having a metal layer(s) according to claim 8, wherein said heat-resistant resin layer A has a glass transition temperature of 250°C to 400°C.

10. The laminate film having a metal layer(s) according to claim 8 or 9, wherein said heat-resistant resin layer A has a thickness of not less than twice that of said heat-resistant resin layer B.

11. The laminate film having a metal layer(s) according to any one of claims 8 to 10, wherein said heat-resistant resin layer B consists essentially of a polyimide resin(s).

12. The laminate film having a metal layer(s) according to claim 11, wherein said heat-resistant resin layer B has a glass transition temperature of 120°C to 280°C.

13. The laminate film having a metal layer(s) according to any one of claims 8 to 10, wherein said heat-resistant resin layer B consists essentially of a thermosetting resin(s) containing an epoxy compound(s).

14. The laminate film having a metal layer(s) according to claim 13, wherein said

heat-resistant resin layer B has a glass transition temperature of 50°C to 250°C.

15. A semiconductor device comprising said laminate film having a metal layer(s) according to any one of claims 6 to 14.

16. A process of producing a laminate film having a metal layer(s) comprising a heat-resistant insulating film and a metal layer(s) laminated on at least one surface of said heat-resistant insulating film through a heat-resistant resin layer(s), said process comprising the steps of laminating at least one heat-resistant resin layer including a heat-resistant resin layer having a coefficient of linear expansion kA (ppm/°C) within the range of $k-10 \leq kA \leq k+20$ (wherein k represents the coefficient of linear expansion of said heat-resistant insulating film) on said metal layer; laminating the resulting metal layer/heat-resistant resin layer laminate(s) and said heat-resistant insulating film which may, as required, have at least one heat-resistant resin layer; and heat pressing the resulting laminate.

17. A process of producing a laminate film having a metal layer(s) comprising a heat-resistant insulating film and a metal layer(s) laminated on at least one surface of said heat-resistant insulating film through a heat-resistant resin layer(s), said process comprising the steps of laminating at least one heat-resistant resin layer including a heat-resistant resin layer having a coefficient of linear expansion kA (ppm/°C) within the range of $k-10 \leq kA \leq k+20$ (wherein k represents the coefficient of linear expansion of said heat-resistant insulating film) on said heat-resistant insulating film; laminating the resulting heat-resistant insulating film/heat-resistant resin layer laminate and said metal layer(s) which may, as required, have at least one heat-resistant resin layer; and heat pressing the resulting laminate.